

# Lessons learned from financing energy efficiency in multi-residential buildings in Lithuania

## National level II

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In 2020, the European Commission launched the Renovation Wave initiative, which aims to double the renovation rate of European buildings in the next 10 years and contribute significantly to the decarbonisation of the EU building sector by 2050. Furthermore, it intends to improve energy and resource efficiency and reduce energy bills while improving the health, comfort and wellbeing of all Europeans, including those who can least afford the necessary investments. The question is how this goal can be achieved, as renovating the whole existing building stock to a very high level of energy and carbon performance entails high upfront costs. In different European countries, such costs can range from 1.5% to 3.5% of national GDP per year over the next 30 years.

While the initiative is new, the challenge is not: it has been discussed for more than a decade in several countries. Some of these countries have also made their best attempts to address it; these efforts do not appear to have resolved the issue, however, as the challenge remains. Nevertheless, such experiences may offer very valuable lessons on what worked, what did not, and what improvements can be made in the next steps.

One such experience is the financing of energy efficiency in multi-residential buildings in Lithuania over the last two decades, which has been recognised as a best-practice example both domestically and at a European level. The action was launched by the World Bank pilot project in 1996, with later funding provided from the national public budget, followed by even more funding from the European Structural and Investment Funds (ESIF) and finally by funds from a growing number of private financiers. While the action was designed to help countries meet their greenhouse gas (GHG) emission-reduction commitments, it generated other benefits in the form of jobs, support to small and medium enterprises, higher bank liquidity and a decrease in energy poverty. This process was not without its challenges, however, and some of these persist. This brief discusses these challenges, along with tested solutions and lessons learned, with a focus on energy poverty.<sup>1</sup>

### Evolution of financing energy efficiency in Lithuania

The evolution in energy efficiency financing for multi-residential buildings in Lithuania represents a process of transformation over the course of 20 years – from a pilot through a basic grant-based programme to effective and efficient financial instruments. Private finance today contributes more than half of the programme funds; 20 years ago, this contribution was still zero (Fig.1).

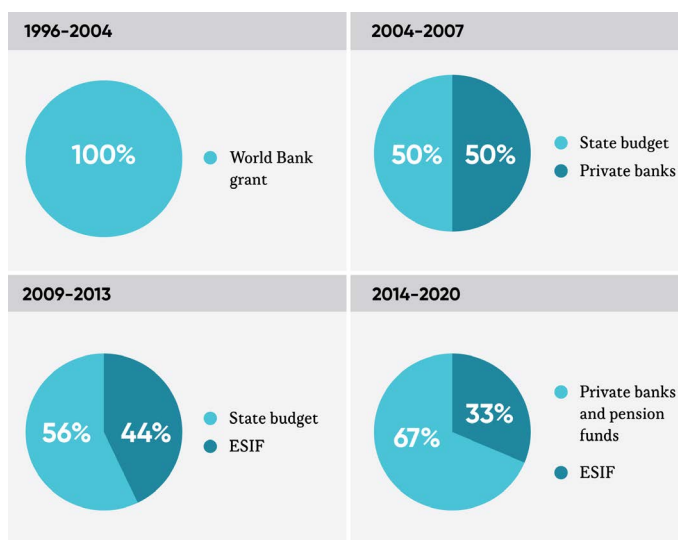


Fig. 1. Structure of funding sources for multi-apartment building renovation programme

### Energy Efficiency Housing Pilot and the 1st national Renovation Programme, 1996–2004

The first step in the evolution was the Energy Efficiency Housing Pilot Project that began in 1996. This project served as a testing laboratory for the implementation of residential energy efficiency projects in Lithuania. It paved the way for further national funded programmes by building up institutional capacities through the provision of technical assistance in the framework of the pilot. The pilot was established in cooperation with the World Bank, the Danish Ministry of Housing and Urban Development, and the Netherlands Ministry of Foreign Affairs. It was exclusively funded by public money and involved relatively limited financial resources: USD 28.6 million over the entire programme period of 1996–2004.

Based on its successful experience, Lithuania established its own national programme on energy efficiency in buildings after the pilot ended. Thus, in 2004, it adopted the Housing Strategy for the Multi-Apartment Buildings Renovation Programme, which was to be financed by the national budget. The programme combined commercial loans secured by a state-owned insurance agency with up to 50% in state grants depending on the achieved energy performance of buildings. The programme was very successful among apartment owners, which led to its termination in 2007. The relatively generous public grant scheme, and the limited public financial resources assigned, caused the programme to run out of public funding. In 2008, private banks stopped is-

suining renovation loans due to the crisis. The suspension of the programme highlights the difficulties that programmes face in an underdeveloped market environment that relies on generous short-term grant schemes.

### Financing by the European Funds in the 2007–2013 European budget period

During the financial crisis of 2008, Lithuania faced many challenges. It was prevented from borrowing on the private lending market. The country was heavily dependent on energy imports. Lastly, poverty, including energy poverty, was high, and district heating bills were a heavy burden for low-income families living in so-called ‘panel’ buildings.

With its accession to the EU in 2005, Lithuania obtained access to the European Structural and Investment Funds (ESIF). Use of these funds required a disbursement of at least of 12% of this support to climate-related needs. The goal of the government was therefore to utilise the available ESIF funds to address as many urgent national priorities as possible, along with the EU-defined climate actions. One such opportunity that the government recognised was the redesigning of the Multi-Apartment Buildings Renovation Programme and its financing from the ESIF. The institutional architecture of the new scheme relied on the JESSICA (Joint European Support for Sustainable Investment in City Areas) framework that was developed by the European Commission and the European Investment Bank (EIB) and managed by the latter. The country created a JESSICA Holding Fund with a total size of EUR 227 million in 2007–2013, with EUR 127 million from the ESIF and EUR 100 million from the national budget as co-financing.

The upfront costs of building retrofits were very high, as were the perceived risks of such an investment by the domestic financial sector: the returns were distributed over a longer period than the market could support. The scheme aimed to address this challenge by using lending with grant components. Loans

allowed public financial resources to be reused in the medium to long term, whereas the grants based on actual energy savings provided an incentive to achieve ‘deep’ retrofits. The soft loans consisted of fixed interest rates below private market rates and a two-year grace period during the construction phase, with maximal minor self-financing and no requirement of a third-party guarantee or loan insurance. Grant components included a 100% grant for the preparation of the renovation documents and a 15% interest subsidy via debt write-off if energy savings amounted to at least 20%, as well as an extra 25% write-off if energy savings reached a minimum of 40%. The scheme also included a 100% reimbursement for all renovations in apartments owned by low-income families. All financial measures based on grants were financed by the Lithuanian budget, with ESIF financing used for the loans.

The scheme aimed to simplify and standardise the implementation process as much as possible. It introduced an ESCO model relieving individual apartment owners from loan administration. This step led to a significant increase in the demand for loans. On average, the renovations achieved a 62% reduction in natural gas consumption of these buildings and thus significantly reduced heating bills. They allowed contracts to be offered to 300 companies, providing 14,000 jobs for renovation works, with 90% of materials produced locally. They also enabled local banks to expand into a new niche of financial products.

### Improving the programme in the 2014–2020 European budget period

With the end of the 2007–2013 period, the JESSICA framework was revised and improved in order to attract more private capital, which integrated private actors more intensively into the lending processes. The renewed JESSICA II Fund of Funds, established in 2014 for the next EU budget period, used private actors not only as financial intermediaries to disburse public funds to private debtors, but also to raise half of its total of EUR 300 million on the private capital market from pension funds

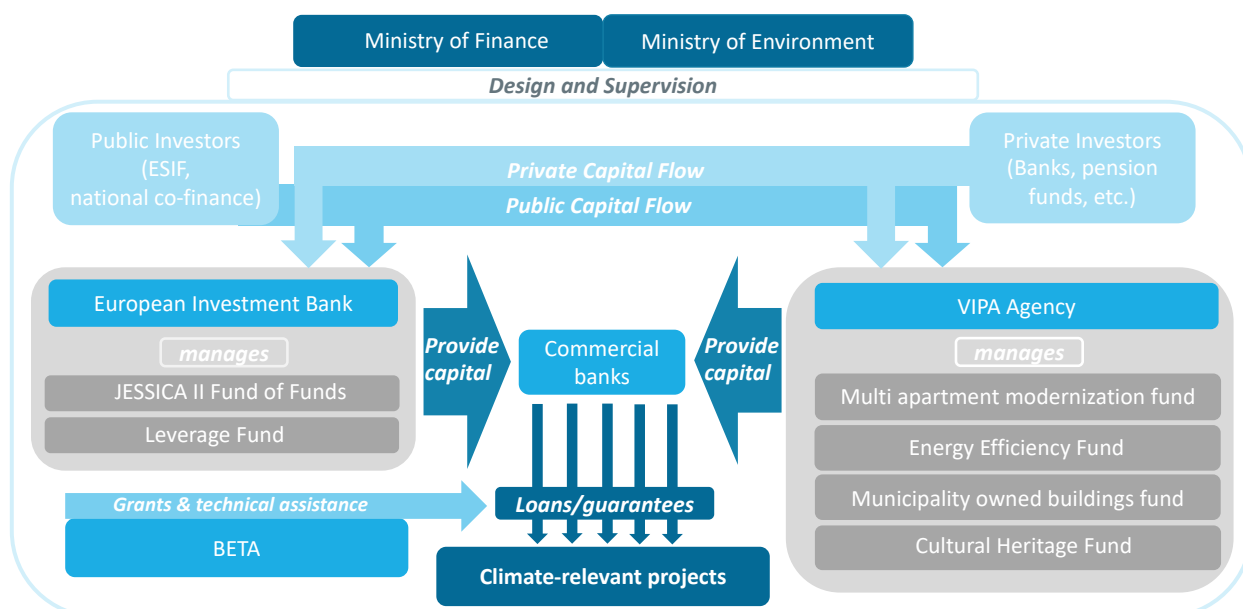


Fig. 2. The financial architecture in Lithuania, 2014–2020

Name	Fund manager	Financial instrument	Aims at energy efficiency in	Size (EUR million) public + private	Achievements	Date of reporting the data
<b>JESSICA II Fund of Funds</b>	EIB	Loans	Multi-apartment buildings	150 + 70	783 signed loans (EUR 202 mil), renovation of 11,896 households	early 2018
<b>Leverage Fund</b>	EIB	Guarantees	Multi-apartment buildings	100 + 500		early 2018
<b>Multi-apartment Modernization Fund</b>	VIPA	Loans	Multi-apartment buildings	74 + 293,5	802 signed loans (EUR 318 mil)	early 2021
<b>Energy Efficiency Fund</b>	VIPA	Loans/ Guarantees	Central government buildings, street lighting	32	60 signed loans (EUR 19.51 mil), 3 guarantees issued (EUR 1.61 mil)	early 2021
<b>Municipality Owned Buildings Fund</b>	VIPA	Loans	Municipal buildings	17.27 + 20	17 loans signed (EUR 4.61 mil)	early 2021
<b>Cultural Heritage Fund</b>	VIPA	Loans	Cultural heritage	5.2	5 loans signed (EUR 2.44 mil)	early 2021

and private banks. This allowed the entire programme to expand by a factor of two. The capital was channelled to several funds, including new ones, which were managed by either the EIB or the Public Investment Development Agency (VIPA) (Fig. 2). The actual lending scheme for multi-apartment buildings was only slightly adapted, without changing the conditions for low-income households.

The introduction of VIPA exemplifies the transfer of knowledge and know-how from European institutions like the EIB to national entities in the operation of complex financial schemes. VIPA is a state-owned Lithuanian institution founded in 2012 for these purposes; between 2014 and 2020, four of six funds were managed by it. The funds managed by VIPA exhibit a design similar to that of the JESSICA fund in 2007–2013 but target

different energy efficiency projects. The funds disburse capital to commercial banks, which in turn disburse capital to relevant projects providing either loans or guarantees. As in 2007–2013, lending schemes financing energy efficiency projects in buildings were further supported by grants and technical assistance, with the latter now provided by the newly established Housing Energy Efficiency Agency (BETA).

The planned funds of approximately EUR 1.1 billion are intended to address the investment needs for building renovation in Lithuania, although they do not yet fully meet this need. According to government estimates, the investment needs for residential energy efficiency amount to EUR 1.4 billion, of which EUR 0.7 billion is in the public sector.

## Challenges and solutions

As illustrated, over the last two decades, Lithuania accomplished a major transformation in the financing of energy efficiency in multi-residential buildings. It shifted from a publicly funded grant-only approach to one in which public funding is used much more strategically to de-risk private investment and provide essential technical assistance and financial incentives at scale. This addressed multiple national priorities, including energy poverty. Each of these strategic elements was a challenge; meeting these challenges has had a significant cumulative impact.

### Programming for national priorities beyond climate

The history of financing energy efficiency in multi-residential buildings in Lithuania shows that the energy efficiency and GHG emission reduction programmes have been most successful when they were set up as development programmes rather than as pure climate finance instruments. Overall, the actions enabled the implementation of broader social and economic reform processes, which were essential for achieving longer term decarbonisation goals. At country level, massive ESIF-financed investment programmes in the energy efficient modernisation of residential

buildings have laid the groundwork and prepared tenants for the gradual removal of subsidies and the liberalisation of heat tariffs. This ‘difficult’ policy has, in turn, created lasting incentives for consumers to engage in energy-efficient consumption; at the same time, it has saved a substantial amount of public money that would otherwise be directed towards subsidies and has improved the overall performance and competitiveness of the heat supply sector.

At household level, research indicated that the motivation for households to participate in the programme was related to various co-benefits rather than to GHG emission reduction or similar aspects. It therefore makes sense to promote the programme to households while appealing to their motivation factors. The latter were identified as aesthetic benefits, sound isolation, a possibility to control individual dwelling heating, an increase in asset value (15–25% as measured ex post), a reduction in flat repair costs, lower heating bills, and an extension of the building’s lifetime (around 20 years as estimated ex post).

### Constant improvements to the programme, reducing the burden on the public budget

The second factor in Lithuania's success is a constant improvement of the scheme, with a gradual reduction of inflow from the national public budget; this was intended to prevent the programme's termination in the event of a budget deficit like that of 2007. The low liquidity in the private lending market in 2008 was overcome by the utilisation of the ESIF, which provided capital to commercial banks for disbursement to apartment owners for building renovations. In 2014–2020, financial intermediaries not only disbursed loans to beneficiaries, but also provided for half of the scheme size.

Once the programme became very popular, the initially generous grant component financed from the national public budget was promptly reduced in order to prevent a funding shortage. The maximal interest subsidy via debt write-off was reduced from 40% of the total loan amount in the 2007–2013 period to 30% in 2014–2020. While the 15% subsidy was still financed by the Lithuanian budget, the rest was covered by funds from the Climate Change Programme, which was fed by the EU ETS revenues. The reduction in the total percentual allowance per renovation loan and the distribution over multiple funding sources caused a discharge of the national budget by 70%.

### Redesigning technical assistance to boost both supply and demand for projects

The establishment of the JESSICA holding fund in 2009 indicated a major scale-up of the formerly nationally funded programme, thus ensuring a supply of well-designed soft loans for apartment renovations. However, for several reasons, this supply was not met by a large increase in demand for these loans. The diverse social status of apartment owners and their lack of energy efficiency knowledge prevented them from cooperatively taking decisions. They also lacked capacity for and expertise in commissioning a technical project, negotiating contract details and supervising the implementation. Their varying economic situations further discouraged some of them from applying for loans issued by commercial banks incorporating repayment obligations.

In order to stimulate the demand for loans, the Lithuanian government developed the 'EnerVizija' implementation methodology and established a designated agency (BETA) which delivered technical assistance to help not only in boosting supply, but also in creating demand for projects. The introduction of this methodology, with municipalities serving as a partner in multi-apartment building retrofits, led the number of completed projects to increase by a factor of five: from 479 completed projects between 2005 and 2013 to 2460 completed projects between 2014 and 2019.

Under 'EnerVizija', building renovations were initiated by municipalities, which appointed project administrators responsible for project implementation. Homeowners solely decided by simple majority if they wanted their building to be renovated under the investment scheme proposed to them by their municipality. Renovation loans were taken out centrally by the building administration company and repaid through each apartment's monthly building-management fees. This eliminated the burden that individual loans would impose on apartment owners and enabled building administration companies to assess the overall credit risk.

For the management of the construction projects, technical assistance was provided to municipalities by a consultancy which prepared technical documents. This simplified the supervision, contracting and management of projects for municipalities. The selection of building upgrades followed a standardised procedure based on a cost-benefit analysis, which took advantage of economies of scale from renovation projects comprising several similar buildings.

### Replacing fuel subsidies with renovation subsidies for low-income households

The 'EnerVizija' methodology and the introduction of a 100% grant covering all upfront costs of technical documentation and project management resolved the barriers to borrowing applications; this led to a significant rise in demand for soft loans. However, the least-wealthy apartment owners still lacked strong incentives to participate in the loan scheme. Low-income families in Lithuania received state support for domestic heating expenses. As a result, these families do not profit monetarily from the energy efficiency renovations.

In order to create incentives for low-income apartment owners, a 100% subsidy for families receiving supplementary assistance was introduced, covering all renovation costs. Simultaneously, in 2013, a law was passed that allowed for a cutback in domestic heat compensation for low-income families refusing to participate in the renovation scheme. The 100% allowance for all renovation costs and the potential cutback in domestic heat compensation successfully addressed the insufficient involvement of low-income apartment owners in renovation and led these owners to sign up for the programme.

Although the issue of including low-income households in the energy efficiency renovation programme was resolved, the problem of financing their contribution was not. Financing for these contributions was 100% covered by the grant from the national public budget at the beginning of the scheme and remains so to date. Therefore, we conclude that it is possible to enable low-income households to benefit from the energy transition at an organisational level, as demonstrated; however, these households are not the actors that will be involved in financing the renovations.

## Lessons learned

We see a long-term planning horizon as one of the key success factors in building energy efficiency programmes. This factor allows the instruments to grow in prominence and become more mature, bringing private and financial sectors on board and addressing numerous barriers. It also helps to provide long-term signals to the construction and technology market; this will allow for capacity-building in terms of labour and technological availability, which is especially important for Lithuania, as an example of a small country.

We also learned that, even within this long period of time, not every policy area is suitable for a shift in traditional finance; grants to more innovative financial instruments that address energy poverty are one of such example. The design of the energy poverty programme requires an ex ante assessment, which should identify other programmes that can incorporate the pri-

vate sector as a principal financier and are able to be combined with the energy poverty programme. Ideally, this synergy between the programmes should lead to a redistribution of available funds towards the low-income groups so that the public money mainly plays the role of a facilitator, a catalyst, and a financier only as a last resort and with clear priorities and limits, which are calculated and known in advance to avoid a shortage in public resources and prevent programme interruptions.

In this regard, we see that it is useful to set up an energy poverty programme not as a pure 'climate finance' instrument, but more as a 'development finance' tool. Maximum alignment of climate objectives and actions with national socio-economic and environmental priorities – including economic development, population welfare, health and similar goals – is critical to ensure the buy-in, wider uptake, acceptance and demand for programme products. Such close alignment is particularly important during an economic crisis, like the present one in 2021, when national authorities are seeking to utilise every opportunity to address economic recovery related to COVID-19.

We further identified that workable implementation arrangements and the provision of additional technical support throughout all project preparation and implementation processes have been critical to the success of the Lithuanian Multi-Residential Building Renovation Programme, i.e. to the timely disbursement of funds and the achievement of intended results. The experience of the Member State offers abundant examples of successful and not-so-successful practices that either contributed to or jeopardised implementation. Lithuania provides an example of an effective and well-coordinated institutional system that was put in place to provide technical assistance to each stakeholder at every stage of planning and implementation, with a dedicated public agency. Therefore, our recommendation is to design and provide very comprehensive technical assistance that is an integral part of the renovation programme rather than an information policy or instrument parallel to it.

In addition, we see that standardisation and simplification of project management, in particular for those parts which relate to public procurement, are essential for private-sector participation in, and buy-in for, such schemes. One of the main bottlenecks we saw is the result of the fact that EU and many national regulations treat grant and non-grant instruments supported with public money as equal and subject them to the same set of rules defined in the legislation on state aid. It is too ambitious to expect that the financial market will sort this issue out on its own and produce many non-grant schemes; it will not, as we observed in other Member States in the previous EU budget period. Therefore, adjusting the rules and requirements for programming EU funds as non-grant instruments will allow for greater flexibility and more innovative arrangements (equity, guarantees, leasing, etc.) and will enable countries to gain greater leverage and secure more private-sector participation in financing climate actions.

Our final note is that it is still unclear how to design a programme which will address all priorities mentioned, including energy poverty and deep energy efficiency or GHG emission reduction at scale for all building types across all geographical jurisdictions. The programmes proved to be an effective instrument to scale up mature low-carbon solutions, such as energy efficiency

in particular building types with very low performance. Even for these, the mid-term evaluation of the ESIF recorded that the actual energy saved was usually less than calculated, as the companies compete for the lowest costs of their work, but not for the deepest energy savings. One can conclude that similar large-scale renovation programmes could be an effective mechanism to scale up 'low-hanging fruits' and maximise their social and economic impacts. Therefore, it is useful to expand the selection criteria of bidding companies beyond renovation costs to include energy savings that have been proved ex post as well as more advanced and innovative solution



<sup>1</sup> For more information and references, please see the background study: Novikova, A., Olshanskaya, M., Dunkel, M. 2020. Lessons learned for international climate policy from the programming, implementation, and monitoring of the European Structural and Investment Funds in EU Member States. Research report for SNAPFI project. Berlin: Institute for Climate Protection, Energy and Mobility (IKEM).

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